



## U.S. ARMY CHEMICAL MATERIALS AGENCY

### Non-Stockpile operations at Pine Bluff Arsenal

The U.S. Army Non-Stockpile Chemical Materiel Project (NSCMP) currently manages two operations at Pine Bluff Arsenal (PBA), Ark. These operations cooperate in the destruction of the nation's largest known inventory of recovered chemical warfare materiel.

PBA is one of six sites in the continental United States that is safely storing and monitoring the nation's chemical weapons stockpile, a mission successfully carried out for more than 50 years. In addition to this critical mission, PBA also safely stores and monitors other materiel classified as non-stockpile chemical materiel, which is not part of the nation's chemical stockpile. NSCMP's current missions at PBA include recovered chemical warfare materiel and miscellaneous chemical warfare materiel.

Four percent of PBA's recovered chemical warfare materiel was transported to PBA for safe storage and monitoring. Workers discovered the remaining recovered chemical warfare materiel on post during arsenal environmental restoration or recovery activities. NSCMP studied multiple disposal alternatives under guidelines found in the National Environmental Policy Act, considering the potential environmental impact before selecting, with public input, the treatment methods.

#### Continuing NSCMP operations at PBA

##### Pine Bluff Explosive Destruction System:

PBEDS began operations in June 2006 to destroy recovered chemical warfare materiel at PBA. The system involved three Explosive Destruction System (EDS) units, each set up in a vapor containment structure. The EDS uses cutting charges to explosively access chemical munitions, eliminating their explosive capacity before the chemical agent is neutralized. The system's main component, a sealed, stainless steel vessel,



*The Pine Bluff Explosive Destruction System (PBEDS), a transportable treatment technology used to process recovered chemical warfare materiel, began operations in June 2006 to destroy the recovered chemical warfare materiel items stored at Pine Bluff Arsenal.*

contains all the blast, vapor and fragments from the process. The EDS is transportable, providing on-site treatment of chemical warfare materiel. Treatment confirmed by sampling residual liquid and air from the vessel prior to reopening the EDS. PBEDS successfully processed 1,169 items through October 2008, most of which were 4.2-inch mortars as well as German Traktor rockets, which have been located at PBA since they were captured during World War II. Two of the rockets processed were recovered on the arsenal during PBEDS operations. The remaining 55 German Traktor rockets will be destroyed using two EDS units.

##### Pine Bluff Ton Container Decontamination

**Facility:** The PBTDF began operations in September 2003, with the mission of decontaminating and recycling more than 4,200 empty ton containers (TCs) stored at PBA. The 1,600-pound steel containers once held hazardous materials and require decontamination for residual chemical agent hazard. Operators heat the TCs to 1,000 F for 60 minutes, well in excess of the standard required by the Army to

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## Non-Stockpile operations at Pine Bluff Arsenal (continued)

achieve chemical agent decontamination. This process significantly reduces liquid waste. Once decontaminated, TCs are loaded onto trailers for transport to a treatment, storage and disposal facility where they will be cut in half, have any remaining residue removed, and be recycled.

### Completed projects

**Assessment:** NSCMP successfully completed a number of projects at PBA within recent years. The recovered items treated in PBEDS were assessed using the Pine Bluff Munitions Assessment System (PBMAS). This system identified the contents and explosive condition of the items before processing to enhance safe handling, treatment and disposal. PBMAS began analyzing the items in July 2005, using an X-ray system known as Digital Radiography and Computed Tomography (DRCT) and an assessment system known as Portable Isotopic Neutron Spectroscopy (PINS) to determine the contents, and whether the items were explosively configured. Prior to PBMAS, NSCMP also assessed 300 drums that contained recovered chemical warfare materiel, known as the XP300 mission.

**CAIS Destruction:** Another successful NSCMP mission at PBA included the Rapid Response System (RRS), a transportable treatment technology, which processed more than 5,300 Chemical Agent Identification Set (CAIS) items once stored at PBA. The RRS began operations in August 2005, and completed processing in November 2006.

**German Traktor Rocket Separation System:** GTRSS was part of the effort to destroy the arsenal's captured German traktor rockets. Some rockets had rocket motors still attached, which made them too large to process in the EDS. The GTRSS detached warheads from motors to facilitate disposal.

### Pine Bluff Former Production Facilities:

Pine Bluff Arsenal, Ark., once housed two former production facilities. Destroyed in 1999, the BZ Fill Facility filled munitions with the agent BZ, a hallucinogen similar to LSD. In 2003, NSCMP began demolition of the former Pine Bluff Integrated Binary Production Facilities (PB IBPF), which were designed to produce binary chemicals and fill binary chemical weapons. Binary chemical weapons were designed to mix two non-lethal chemicals to form a chemical agent while in flight to a target. The DF Production/M20 Canister Fill and Close Facility was the only facility operated. From 1988 to 1990 it produced the binary precursor methylphosphonic difluoride (DF), inserting the chemical into coffee can-sized M20 canisters for use in the M687 155 mm Binary Artillery Projectile. The BLU-80/B Bigeye Bomb Fill Facility, QL Production Facility and DC Production Facility never operated, and all were demolished.

The final remaining PB IBPF building, intended to fill binary munitions for the Multiple Launch Rocket System, but never used for that purpose, was reutilized as the Pine Bluff Binary Destruction Facility (PB BDF), to neutralize the binary precursor chemicals DF and QL. After neutralization was completed in October 2006, demolition of the building commenced and was completed on Dec. 28, 2006, marking the end of the PB IBPF demolition and the last former chemical warfare production facility destroyed in the United States. This accomplishment proved significant as it enabled NSCMP to meet the treaty milestone of complete demolition of all of the nation's former production facilities, an achievement reached four months ahead of schedule. Approximately 2,800 tons of metal were recycled from the IBPF.